FACULTY OF SCIENCE

ACADEMY OF COMPUTER SCIENCE & SOFTWARE ENGINEERING

MODULE **IFM100**
INTRODUCTION TO ALGORITHM DEVELOPMENT (VB)

CAMPUS **APK**

EXAM **June 2016 – Paper A**

DATE	2016-06-14	**SESSION**	12:30 -15:30
ASSESSORS		MR M CILLERS MR D COTTERRELL	
INTERNAL MODERATOR		MR SMA MAVEE	
DURATION	3 HOURS	**MARKS**	100

- This question paper consists of 3 pages.
- Please read through the following instructions and be sure to follow them precisely in order to prevent any problems as failure to submit properly can result in students failing the examination.

- **Please do not hesitate to ask an invigilator for help if you do not understand these instructions.**

INSTRUCTIONS:

- Please ensure that you are seated at the computer that has been assigned to you.
- Please name your Visual Basic solution using the following format `CXXX_YYYYYYYY` where `X` represents your computer number and `Y` represents your student number. For example, student 201500001 sitting at computer number 10 will name his project `C010_201500001`.
- The project (and all associated files and subdirectories that form part of the project) MUST be saved to the T:\ drive in a single directory ***bearing the name of your Visual Basic solution*** (see point above).
- The first fifteen minutes of the examination are reserved for design only. Students may not begin coding until given notification to do so.
- The mark sheet on page 3 forms part of the question.
- The solution must be implemented in Visual Basic 2015.
- When you are ready to submit, all material provided to you must be handed in to an invigilator. Please note the following, you must:
  - Complete your details on page 3 of the question paper.
  - Save all files associated to your solution and close Visual Studio 2015.
  - Compress your project folder (which contains all necessary files associated to your project) in a zip file.
  - Upload the zip file to Eve.

The organisers of this year's Creative Goblet competition have approached you to help develop a Visual Basic application to manage the results of the competition. The objective of the application is to keep track of the scores awarded to each project by each of the judges. Once the judges have finished evaluating all of the projects you need to determine the winner of the competition. You may assume that each project will be seen by the same number of judges.

The following information will be needed for each of the projects:

1. Name of the team (**i.e.** *"Brogrammers"*)
2. Name of the project (**i.e**. *"Pingo"*)
3. Score out of 10 for each of the judges (**i.e.** *6 ;5 ;6 ;8 ;9*)
4. Overall result of the judging (**see question b**)
5. Quality of the project (**see question d**)

Your application must be able to complete the following additional instructions:

a) Read in all the needed information and display the score for each project by each of the judges.

b) Calculate, store **(in 4)** and display the overall results of the judges for each of the projects. This is calculated by adding all the scores given by the judges and dividing by the number of judges.

c) Create a function called ***DetermineQuality*** that will accept one parameter as a double and returns a string, see table below:

Value as Double	**String to be returned**
< 4	"Low"
4 to 6	"Medium"
7 to 9	"High"
> 9	"Excellent"

d) Use the function created in **question c** to determine, store **(in 5)** and display the quality level of each of the projects based in the overall results.

e) Calculate, store and display the average score given by each of the judges.

f) Calculate and display in a textbox the number of projects that have an overall result of 7 and higher.

g) Now for the main objective of the application that is determining and displaying the name of team that wins the Creative Goblet Competition, this is the team with the highest overall result.

Please note that no further marks will be awarded for Correct Execution from the point a program terminates unexpectedly – a solution that cannot be run will therefore be awarded 0 Correct Execution marks immediately whereas a program that is able to execute up to Question b) <u>may</u> qualify (subject to correctness of code) for Correct Execution marks up to Question b).

Academy of Computer Science & Software Engineering
Informatics 100: Introduction to Algorithm Development (VB)
June 2016 Examination –Paper A

Sort Rank

UNIVERSITY OF JOHANNESBURG

Student #										**PC #**			
ID #													
Surname										**Inits**			

When you submit your solution, read through each of the following points and **tick each box** to confirm that you have completed the three steps below:

1. The full and final version of the Visual Basic project that I intend to submit for marking was saved to the correct location as specified by the invigilators. **I fully understand that failure to save all project files to the correct location will mean that the Academy will not be able to mark my project and I will forfeit marks as a result.**	
2. A zip file containing the full and final version of the Visual Basic project listed in Point 1 above has been uploaded to Eve.	
3. I have **personally confirmed** that the version of the Visual Basic project that has been saved to the backup media checked below is a **correct copy** of the Visual Basic project listed in Point 1 above.	

Signature		Backup Media	CD	
			USB	

Section A: Design & Programming Practices

	M1	M2	Total		M1	M2	Total
Full Design			5	Variables & Record Structures			5
Form Look & Feel			2	Commenting			1
Option Statements			1	Effective Use of Subroutines			1
Section A Total							**15**

Execution Status:	Does not execute		Expected termination		Terminates during Question (indicate a-g)	

Section B: Execution of Program	**Code**			**Correct Execution**		
	M1	M2	Total	M1	M2	Total
Question a) Read in the information and display the judge's score for each projects						14
Input the number of projects and judges for each project (this includes resizing the array and grid, plus labelling the grid)			8			
Input the details for each project and display the scores given by the judge			7			
Question b) Calculate, store and display the overall result for each of the project						5
Calculate and store the overall result for each of the projects			4			
Display in the grid			1			
Question c) Create a function called DetermineQuality						4
Parameters, and return value			4			
Question d) Determine, store and display the quality of each of the projects						4
Calculate and store the quality level of each of the projects using the function			3			
Display in the grid			1			
Question e) Calculate, store and display the average score given by each judge						5
Calculate and store the average score each judge gave			4			
Display in the grid			1			
Question f) Calculate and display the number of projects that have an overall score of 7 and higher						5
Calculate the number of projects that have an overall score of 7 and higher			4			
Display in a textbox			1			
Question g) Calculate and display the name of the project that has the highest overall score						5
Determine the name of the team that has the highest overall score			4			
Display in a textbox			1			
Section B Totals			**43**			**42**

	Signature	**Initials**	**A**	**B (Code)**	**B (Correct)**	**Total**
Examiner:						
			15	**43**	**42**	**100**